EFFECTIVENESS OF INFECTION CONTROL STANDARDS ON PRACTICE AMONG HEALTH CARE PERSONNEL WORKING IN LABOUR UNIT AT SELECTED HOSPITALS, NAGERCOIL

DISSERTATION SUBMITTED TO

THE TAMIL NADU DR. M.G.R.MEDICAL UNIVERSITY

CHENNAI

IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

OCTOBER 2014

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LIST OF ABBREVIATIONS

AWHONN	–	Association of Women's Health, Obstetric and Neonatal Nurses
AIIMS	–	All India Institute of Medical Science
CDC	–	Centre of Disease Control and Prevention
DHS	–	Demographic Health Survey
HOD	–	Head of the Department
ICCR	–	International Centre for Collaborative Research
IERD	–	Institutional Ethics Review Board
KFOG	–	Kerala Federation of Obstetrics and Gynaecology
MCH	_	Maternal Child Health
MDG	–	Millennium Development Goals
MICS	–	Multiple indicator cluster survey
PHC	–	Primary Health Centre
SD	–	Standard Deviation
STP	–	Structured Teaching Programme
UK	–	United Kingdom
WHARC	–	Women's health and action research centre
WHO	–	World Health Organization

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Effectiveness of Infection control Standards on practice among health care personnel working in labour unit.

Aim and objective: To assess the effectiveness of Infection control standards on practice among health care personnel working in labour unit. **Methodology**: The Research design was Pre-experimental one group pre test post test design conducted at Selected hospitals, Nagercoil, 60 health care personnel who satisfy the inclusion criteria were selected as samples using purposive sampling technique. Infection Control Standards was administered. The pre and post test level of practice on infection control was assessed by using observation checklist. **Results**: The findings of the study revealed that the mean pre test level of practice on infection control was 21.47 with standard deviation of 1.92 and mean post test level of practice on infection control was 43.73 with standard deviation of 2.02. The calculated 't' value was 59.14 which was significant at $p < 0.001$ level. The findings revealed that there was a high statistical significant difference in the level of practice on infection control among health care personnel working in labour unit. The analysis revealed that the demographic variables showed statistically no significant association of mean differed level of practice on infection control in labour unit among health care personnel at $p < 0.01$. **Conclusion:** The result revealed that there was an enhancement in the level of practice after administration of Infection Control Standards among health care personnel. Thus Infection Control Standards was an effective technique in improving level of practice on infection control in labour unit. among health care personnel.

Keywords: *level of infection control practice in labour unit, effectiveness of infection control standards*

INTRODUCTION

Child birth is a momentous occasion in life of a couple. A woman who fulfils her life is when she experiences the pleasure of motherhood. Birth process is an ecstatic experience of unparralled joy; it is a gateway to the next chapter of womanhood and an experimental lesson in personal power and trust in divine. During this incredible journey of childbirth, woman's genital tract is prone to infection due to sub standard level of infection control practice.

The prevalence of infection during labour increases day by day. World Health Organisation (WHO) Global burden of disease categorises this as "Childbed fever" which is also spelled as puerperal sepsis.

Infection prevention and control is integral to safe, effective and ethical nursing practice. Ensuring the use of infection control standards is an important component of nursing. Worldwide escalation of the use of infection control standard will endorse quality promotion of health care which is safe for mother and health care personnel in labour unit.

Objective

To assess the effectiveness of Infection Control Standards on practice among health care personnel working in labour unit .

METHODOLOGY

Research Design: Pre-experimental one group pre test post-test design

Variables:

Independent variable - Infection control standards

Dependent Variable – practices on infection control in labour unit among health care personnel.

Setting: The study was conducted in labour ward of Subam Hospital, Jeyaharan Memorial Hospital, Irene Hospital, S.A.Catherine Booth Hospital, Gopala Pillai Hospital, Nagercoil

Samples: The health care personnel who fulfilled the inclusive criteria were selected as samples for the study by using purposive sampling technique.

Intervention: Infection Control Standards which consist of

- Lecture cum discussion with power point presentation on
  1) Clean birthing room environment
     -to maintain well organized and clutter free environment.
  2) Infection control practice during labour and birth
     - Personal protective equipment
     - Hand hygiene
       - preparation before hand washing
       - five moments for hand washing
       - seven steps in hand washing
     - Vaginal examination
     - Preparation of mother
       - general preparation
       - preparation for delivery
     - Preparation of delivery tray set up

- Preparation of health care personnel
- During the labour procedure
- After the labour procedure
- examining the perineum and suturing
- Clean and safety handle of contaminated surface and materials following procedures.

3) Storage of clean and sterile supplies

4) Safe waste management- when to dispose, where to dispose, how to dispose

Measurements and tool

The pre and post test level of practice was assessed by using observation checklist.

Both descriptive and inferential statistics were used for analysis.

RESULTS

The findings of the study revealed that pre test level of practice on infection control in labour unit among health care personnel was 40(66.67%), 60(100%), 60(100%) had fair practice on clean birthing room environment, infection control practice during labour and birth and in safe waste management respectively, 60(100%) had excellent practice in storage of clean and sterile supplies. And the post test level of practice on infection control in labour unit among health care personnel revealed that 36(60%) and 60(100%) had good practice on clean birthing room environment and in safe waste management respectively, 58(96.67%) and 60(100%) had excellent practice on infection control during labour and birth and in storage of clean and sterile supplies respectively.

When comparing the pre and post test level of practice, the pre test mean score was 21.47 with the standard deviation of 1.92 and post test mean score was 43.73 with the standard deviation of 2.02. The calculated 't' value was 59.14 which was greater than the table value and this indicated that there was statistically high significant difference at $p < 0.001$ level.

The analysis also revealed that there was no significant association of mean differed level of practice on infection control in labour unit among health care personnel.

DISCUSSION

The interpretation of the present study showed that there was an enhancement in the level of practice after administration of Infection control standards in labour unit. Thus Infection control standards was an effective education technique in improving level of practice on infection control in labour unit among health care personnel.

IMPLICATIONS

Nurse administrators should facilitate and encourage staff nurses to update their knowledge and practice on infection control standards by organizing in-service education programme in the clinical area. Research based practice is a hall mark of professional nursing. The findings of this study will act as a catalyst to carry out more extensive, qualitative focused and cost effective research in improving the level of practice on infection control in labour unit.

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INTRODUCTION

Childbirth is a momentous occasion in the life of a couple. There is no greater gift for a mother than a healthy newborn baby and being healthy thereafter the delivery. Moreover healthy women are the foundation of a strong community and healthy newborns are the future.

Though pregnancy is a pleasurable journey, it gives pressure too on the mother due to some acquired health problems such as infection. During this incredible journey of childbirth, woman's genital tract is prone to infection due to sub standard level of infection control practice. There is no direct evidence of infection rates rising as a result of increasing institutional delivery. However, it is plausible that increasing utilization of under resourced health facilities can result in stresses to the health system, overcrowding, poor environmental conditions, overworked health workers, shortage of supplies and substandard clinical practices. These falling standards of care may include deteriorating infection control practices, resulting in an increased risk of institutionally acquired puerperal sepsis.

Sepsis after childbirth is emerging as a significant cause of maternal mortality and morbidity, raising questions about the quality of obstetrics and postnatal care given to women and the efficacy of infection-control practices in hospitals which directly reflects the aspects of quality of obstetric care. The unhygienic delivery practices by health personnel, shortage of suitable clean implements and materials all contributes to the problem of infection after childbirth. The burden of this disease resulting from infection has led to a revival of general interest in infection control. Infection control measures aims to avoid infection (i.e. primary prevention) by enhancing practices of hand hygiene, surgical asepsis, environmental hygiene, clean equipments and training of health care personnel.

The **WHO (2005)** launched an infection control campaign 'clean care is safer care' as part of its global patient safety challenge. The infection control campaign placed hand hygiene as its first priority and guidelines in hand hygiene have been developed using recommendations based on evidence. The Centre of Disease Control and

Prevention (**CDC's) (2006)** "Guideline for Hand Hygiene in Health-Care Settings" recommends that gloves must be worn according to standard and contact precautions. Over the years, many studies have demonstrated the effectiveness of gloves in allowing health care workers to avoid introducing infection to patients and as well as personal protective measure. The other major concern emerged as an issue in health care setting is biomedical waste management which has become a worldwide humanitarian topic today. The **Biomedical Waste (Management and Handling) rules 2011** have clarified the ambiguity and allotted one colour to each category of waste which was inculcated in infection control policy.

1.1 BACKGROUND OF THE STUDY

Labour, the culmination of pregnancy, is the start of an incredible journey with great psychological, social and emotional meaning for the mother and her family. To accommodate this incredible journey, birth unit is believed to encourage 'nesting' which is a process of making a place safe for the baby and protecting the mother from hazardous infection. The features that makes this nesting possible is a sense of welcoming to the unit; an ambiance of warmth, trust, nurturing, love and clutter free environment. Thus the importance of a strong health system is an essential route to achieve improvements in maternal health and reduction in maternal mortality.

The worldwide incidence of infection during labour has become a growing issue day by day. WHO global burden of disease categories this as "Childbed fever" which currently spelled out as "Puerperal sepsis". According to WHO, puerperal sepsis is defined as the infection of the genital tract occurring at labour or within 42 days of the postpartum period. World literature search revealed a report that puerperal sepsis is a second leading cause of death accounting for 26.3% of maternal death. (**Maternal and childbirth 2013**).

The urgency to make progress towards reaching the Millennium Development Goals (MDGs) by 2015 has led to the fast-tracking of strategies to improve the uptake of delivery care with skilled health professionals. However, any consequent increase in uptake of services can place an added burden on health facilities and health personnel where resources are limited. And hence the hospital administrator/ head of hospital

should provide adequate resources for effective functioning of the infection control programme. Thus worldwide escalation of the use of infection control standards will endorse quality promotion of health care which is safe for mother, newborn and health care personnel in labour unit.

Globally the prevalence of infection during labour increases day by day. The WHO report estimated 358,000 maternal deaths yearly occurring due to childbirth problems and out of these upto 15% are associated with puerperal sepsis. (**WHO 2013)**.

In industrialized countries, puerperal sepsis is rare, causing 2.1% of maternal death. In Latin America and the Caribbean, its contribution of maternal mortality is 7.7% whereas in Africa and Asia, it is the second commonest cause of maternal morbidity, causing 9.7% and 11.6% of death respectively. **(Globalization and Health 2013)**

Studies shown Nigeria accounts 50% of global maternal death, estimated that maternal morbidity are high as 608 per 1, 00, 000 births among which puerperal sepsis accounts 15% of death. **(Women's Health and Action Research Centre, WHARC 2012)**

A review report covering a period of 20 years, in Norway, on the number and causes of maternal death showed puerperal sepsis accounted for 4 out of the 47 death (10%) ranking the leading cause of maternal mortality. In Poland, over a 10 year period, 462 maternal deaths were recorded and sepsis accounted for 27.3% of the direct maternal death and was the second leading cause of death. **(Globalization and Health 2012)**

In India, maternal death worldwide accounts fifth, the current prevalence is 430 per 1,00,000 among which puerperal sepsis stands 9.7% stated by WHO and national reports. **(WHO, 2013)**

The Kerala Federation of Obstetrics and Gynecology (KFOG), conducted a confidential review of maternal deaths in the state since 2004, has reported that in 2006 sepsis accounted for 7% of all maternal deaths and was its fifth leading cause, in 2009, it was the third leading cause, responsible for 8% of all maternal deaths. The review

showed that 20 of the 32 sepsis deaths occurred within a week of the delivery, indicating that these were fulminant infections. The report recommended that aggressive hospital infection control polices, a common antibiotic policy, aseptic precautions in the labour room and general improvement in hygiene and cleanliness can go a long way in controlling sepsis. **(KFOG, 2013)**

Health service coverage indicators reflect extent to which people in need actually to receive important health interventions. One among the intervention includes, the provision of skilled care to women during pregnancy and childbirth. The data concluded by UNICEF Multiple Indicator Cluster Survey (MICS) and the Demographic Health Survey (DHS) report states that only 58% of birth is attended by skilled personnel. **(WHO, world health statistics, 2013)**

The main focus of the study was to educate the health care personnel regarding infection control standards in labour unit in order to enhance their level of practice on infection control.

1.2 SIGNIFICANCE AND NEED FOR THE STUDY

Pregnancy is a time of joy and excitement. Labour, the culmination of pregnancy, is the start of an incredible journey with great psychological, social and emotional meaning for the mother and her family. During this incredible journey of childbirth, a woman's genital tract, a bare surface prone to infections which are introduced by certain invasive procedures routinely done in labour unit such as vaginal examination, urinary catheterization, and artificial rupture of membrane, instrumental deliveries and also by the sub standard level of infection control practice.

The burden of this disease resulting from infection has led to a revival of general interest in infection control. Infection prevention and control is integral to safe, effective and ethical nursing practice. Ensuring the use of infection control standards is an important component of nursing. It aims to avoid infection (i.e. primary prevention) by enhancing practices of hand hygiene, surgical asepsis, environmental hygiene, clean equipments and training of health care. Therefore, collecting national data on maternal morbidity and mortality, reforming infection control guidelines and enrolling it hospital

policies, providing holistic and flexible maternal health care, and initiating in-service educational programs in hospitals are recommended. Further research is needed on issues related to infection control practice in labour unit.

Globalization and health (2013) a systematic review published provided information provided information on the contribution of puerperal sepsis in relation to maternal death. Data from individual studies were used to generate combined estimate of cause of death distribution by region; which reports 11.6% of maternal death in Asia were due to puerperal sepsis, 9.7% in Africa and 7.7% in Latin America, compared with only 2.1% in developed countries. Sepsis showed the highest between developing and developed countries, with odd ratio of 2.71 in Africa, 1.91 in Asia and 2.16 in Latin America compared with developed countries.

WC Huskins, V.Manchandaz (2013) conducted a structured assessment of different facilities in Rajasthan and Odisha on infection control practice in labour and delivery room. The team completed the assessment in 5 community health centers and district hospitals using the infection control assessment tool. The result reported that cleanliness and general hygiene were conspicuously absent; hand hygiene practices were poor due to lack of awareness and supplies and there were concerns regarding storage and disposal of bio-medical waste. The study concluded that ensuring training of staff on asepsis procedures and uninterrupted supplies to labour and delivery room would enhance the infection control practice in labour room.

Anandalakshmy PN (2010) conducted a sixteen year study on maternal mortality in a referral hospitals in Northern India, revealed that puerperal sepsis was responsible for over 35% of maternal death because of poor practices of asepsis technique in labour room, poor general hygiene in hospital which is caused due to shortage of manpower and other inadequacies in hospitals.

WHARC (2009) conducted a study to observe for practices and records relating to infection control and past experience of puerperal sepsis. 63 health care facilities were sampled from 8 local government areas in Nigeria. The results finally revealed that of 63 health facilities, only 8 facilities (12.7%) had infection control committee in place, 7(11.1%) have regular audit for maternal death: 18(28.6%) have set standards for

infection control in their maternity ward while 21(33%) reported that they have regular training for staffs on infection control.

Jothi Bala (2009) conducted a study on knowledge and practice of staff nurse regarding infection control in Maternal Child Health (MCH) area of selected hospital, Ludhiana, Punjab. A sample of 60 staff nurses were selected purposively. The final result depicted that staff nurses had efficient knowledge on infection control (80%) whereas level of practice were not appropriate to the standard.

Rajaram P, Agarwal (2008) conducted a hospital based study in South India on determinants of maternal mortality results depicted that sepsis was a leading cause of maternal death responsible for 41.9% of death. The study concluded that it reflects the clear indication of poor practice of aseptic techniques in the labour unit and poor general hygiene in hospitals.

The investigator having clinical experience in working with health care personnel maintaining sub standard level of practice in labour unit. Hence the investigator devised infection control standards to improve level of practice on infection control among health care personnel in labour unit.

Though many studies are conducted in the field of infection control practice, the researcher could find minimal studies to assess the effectiveness of infection control standards in labour unit among health care personnel. This motivated the researcher to undertake a study to assess the effectiveness of Infection control standards on practice among health care personnel working in labour unit at selected hospitals, Nagercoil.

1.3 STATEMENT OF THE PROBLEM

A pre experimental study to assess the effectiveness of infection control standards on practice among health care personnel working in labour unit at selected hospitals, Nagercoil.

1.4 OBJECTIVES

1. To assess the pre and post-test level of practice on infection control in labour unit among health care personnel

2. To compare pre and post-test level of practice on infection control in labour unit among health care personnel
3. To associate the selected demographic variable with mean differed level of practice on infection control in labour unit among health care personnel

1.5 OPERATIONAL DEFINITION

1.5.1 Effectiveness

It refers to the outcome of infection control standards in terms of higher quality practice which will be assessed by using observational checklist devised by the investigator based on modified All India Institute of Medical Science (AIIMS) and WHO infection control practical guide.

1.5.2 Infection control standards

It refers to the set of instructions prepared by the investigator which provides clear guidelines for the health care personnel regarding infection control practices which is to be followed in labour unit as per AIIMS and WHO infection control practical guide. It includes the following components

- Clean birthing room environment.
- Infection control practice during labour and birth.
- Storage of clean and sterile supplies.
- Safe waste management.

1.5.3 Practice

It refers to activities performed in the labour unit by the health care personnel to prevent infection which will be assessed by using observation checklist prepared by the investigator.

1.5.4 Health care personnel

It refers to the staff nurses who are registered and have educational qualification of B.Sc (N), Post B.Sc (N), Diploma in nursing and Auxillary Nurse Midwives(ANM) working in labour unit.

1.5.5 Labour unit

It refers to the department of a hospital that provides care for women during pregnancy and childbirth as well as immediate newborn care.

1.6 ASSUMPTIONS

1. Health care personnel may have good level of practice to control infection in labour unit.
2. Imparting information regarding infection control standards may enhance the level of practice to control infection in labour unit among health care personnel.

1.7 NULL HYPOTHESES

NH_1: There is no significant difference between the pre and post test level of practice on infection control in labour unit among the health care personnel at the level of $p < 0.05$.

NH_2: There is no significant association of selected demographic variables with mean differed level of practice on infection control in labour unit among the health care personnel

1.8 DELIMITATION

The study was delimited to period of 4 weeks

1.9 CONCEPTUAL FRAMEWORK

A conceptual framework or a model is made up of concepts, which are the mental images of the phenomenon. It provides the guidelines to proceed to attain the objectives of the study based on a theory. It is a schematic representation of the steps, activities and outcomes of the study.

The investigator adapted **WIEDENBACH'S HELPING ART OF CLINICAL NURSING THEORY** as a basis for the conceptual framework, which was aimed to assess the effectiveness of infection control standards on practice among health care personnel working in labour unit at selected hospitals.

Ernestine Wiedenbach's enrolled in the John Hopkins School of nursing and wrote Family Centered Maternity Nursing and developed the helping art of clinical nursing perspective theory in 1964. According to this theory, the practice of nursing comprises a wide variety of services; each directed towards the attainment of one its three components.

STEP – 1: IDENTIFYING THE NEED FOR HELP

In this study the investigator and health care personnel come together with the goal of achieving excellent level of practice through the infection control standards organized by the investigator.

There are two components in identifying the need for help.

a) General Information:

This comprises of collection of demographic variables and pre test level of practice on infection control in labour unit among health care personnel

b) The Central Purpose:

Central purpose refers to what the investigator want to accomplish. Here the central purpose was to enhance the level of practice to control infection in labour unit among health care personnel

STEP – II: MINISTERING THE NEEDED HELP

The Nurse formulates a plan for meeting the patient's need for help based on available resources.

a) Prescription

It refers to the plan of care, the nature of action that will fulfill the central purpose. Here, the prescription was the infection control standards on practice in labour unit which includes lecture cum discussion method using PowerPoint presentation.

b) Ministering (intervention)

In this study the investigator utilizes the infection control standards on practice in labour unit which included the following components

- Clean birthing room environment.

- Infection control practice during labour and birth.
- Storage of clean and sterile supplies.
- Safe waste management.

c) Realities

The realities are the immediate situation that influences the fulfillment of the central purposes. Nurse midwives should consider the realities of the situation in which she has to provide nursing care. Wiedenbach's defines the realities as:

1. The Agent:

It refers to a person who is providing care to the delegates characterized by personal attribute, problems, commitment and competence in nursing. Here it was the nurse investigator, who directed all action/prescription towards the central purpose.

2. The Recipient:

It refers to the client who is characterized by personal attributes, problems, capacities, aspirations and ability to cope with the concern or problems, commitment and competence in nursing. Here it was the health care personnel working in labour unit at selected hospitals, Nagercoil who received the nurse investigator's action/prescription.

3. The Goal:

It refers to the outcome the nurse wishes to achieve. Here it was to improve the level of practice on infection control in labour unit among health care personnel

4. The Means:

Comprises the activities and devices through which the agent attains the goal. The means include skills, techniques, procedures and devices that may be used to facilitate nursing practice. Here it was the infection control standards to improve the level of practice in labour unit among health care personnel

5. The Framework:

Refers to the facilities in which nursing is practiced. Here it was the

- Subam Hospital, Vadasery, Nagercoil– 220 bedded hospital with 60 beds for maternity and 80 -100 deliveries per month are conducted in which 11 health care personnel are working in labour unit.
- Jeyaharan Memorial Hospital, Nagercoil – 200 bedded hospital with 60 beds for maternity and 100 deliveries per month are conducted in which 10 health care personnel are working in labour unit.
- Irene Hospital, Nagercoil - 200 bedded hospital with 100 bed for maternity and 100-150 deliveries per month are conducted in which 15 health care personnel are working in labour unit.
- S.A.Catherine Booth Hospital, Nagercoil- 250 bedded hospital with 60 beds for maternity and 80 -100 deliveries per month are conducted in which 12 health care personnel are working in labour unit.
- Gopala Pillai Hospital, Nagercoil -200 bedded hospital with 100 beds for maternity and 100 deliveries per month are conducted in which 12 health care personnel are working in labour unit.

STEP – III: VALIDATING THE NEEDED HELP WAS MET

It is validating the needed help was delivered in achieving the central purpose. This step involves the post test assessment after ministering the help and the comparison/analysis to infer the outcome. This approach there by enables the researcher to make suitable decision and recommended action to continue, drop or modify the nursing action. Here it is the comparison of pre and post test level of practice on infection control in labour unit among health care personnel.

The expected outcome of level of practice on infection control in labour unit was categorized as fair practice, good practice and excellent practice.

The health care personnel who had fair level of practice were enhanced by the lecture given on infection control standards in labour unit.

1.10 OUTLINE OF THE REPORT

Chapter 1 **:** Dealt with introduction, background of the study, need for the study, and statement of the problem, objectives, operational definitions, assumptions, null hypotheses, delimitation and conceptual framework.

Chapter 2 **:** Contains the Scientific review of literature related to the present study.

Chapter 3 **:** Presents the methodology of the study and plan for data analysis.

Chapter 4 **:** Focuses on data analysis and interpretation.

Chapter 5 **:** Enumerates the discussion and findings of the study.

Chapter 6 **:** Consist of summary, conclusion, implications, recommendations and limitations of the study.

The study report ends with selected References and Appendices.

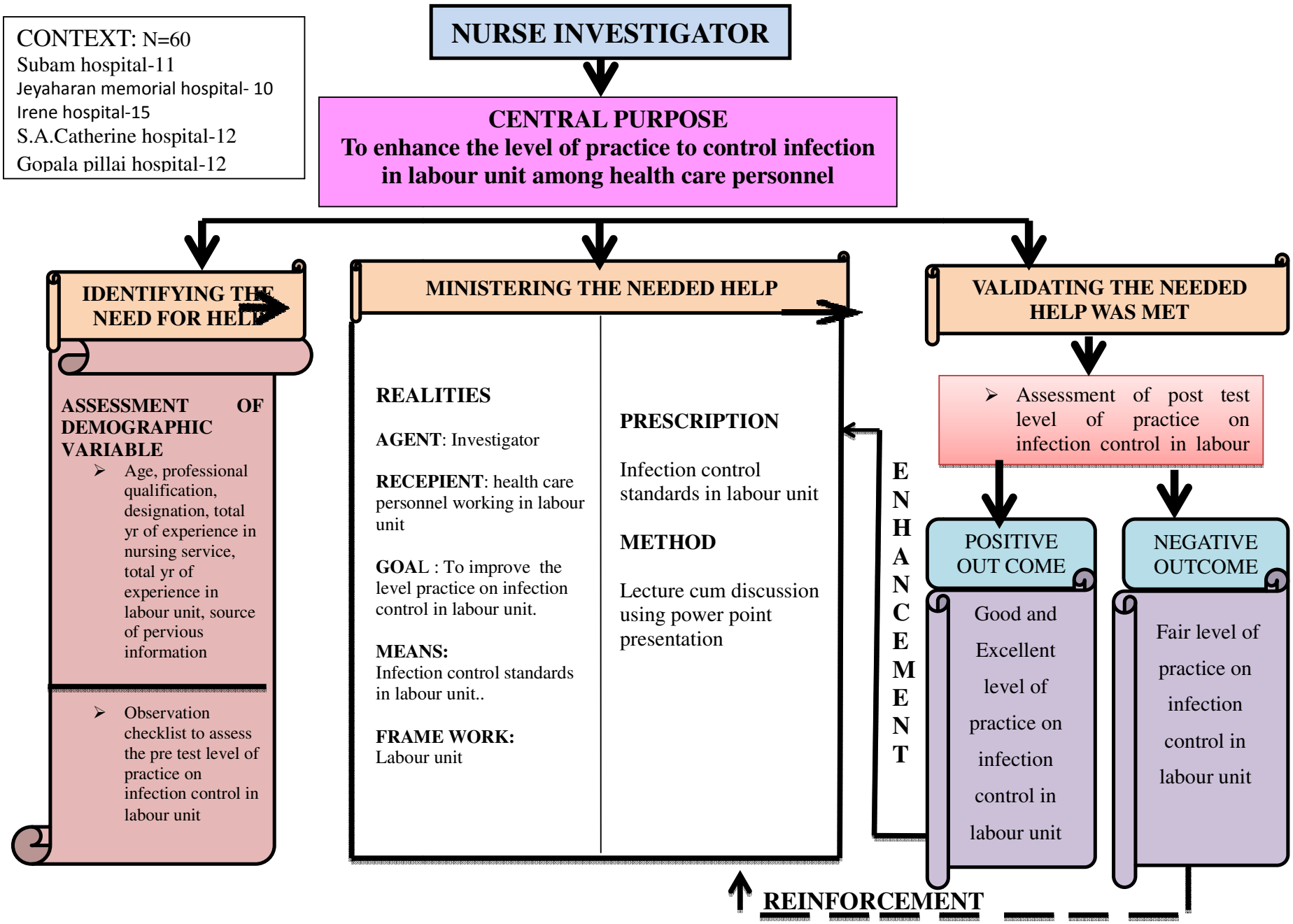

Fig 1.9.1: CONCEPTUAL FRAMEWORK BASED ON WIEDENBACH'S HELPING ART OF CLINICAL NURSING THEORY

REVIEW OF LITERATURE

This chapter deals with the related literature review which aids to generate a picture of what is known and not known about a particular situation.

Review of literature is an organized critique of important scholarly literature which supports a study and a key step in research process **(Polit & Hungler).**

An extensive review of literature was done by the investigator to gain an insight into the problem, collect maximum information from systematic and critical review of scholarly publications, unpublished scholarly print materials. The logical sequence of the chapter is organized in the following sections:

SECTION 2.1: Scientific reviews related to infection control practice in the labour unit.

SECTION 2.2: Scientific reviews related to effectiveness of Infection control standards on practice in labour unit.

SECTION 2.1: SCIENTIFIC REVIEWS RELATED TO INFECTION CONTROL PRACTICE IN THE LABOUR UNIT

WC Huskins, V.Manchandaz (2013) conducted a structured assessment of different facilities in Rajesthan and Odisha on infection control practice in labour and delivery room. The team completed the assessment in 5 community health centres and district hospitals using the infection control assessment tool. The result reported that cleanliness and general hygiene were conspicuously absent; hand hygiene practices were poor due to lack of awareness and supplies and there were concerns regarding storage and disposal of bio-medical waste. The study concluded that ensuring training of staff on asepsis procedures and uninterrupted supplies to labour and delivery room would enhance the infection control practice in labour room.

Khaskheli MN, Baloch S, Sheeba A (2013) conducted an observational prospective cohort study from January 2011 to December 2011 at the Obstetrics and Gynaecology department Liaquat University of Medical and Health Sciences Jamshoro/Hyderabad, Sindh Pakistan. Sample included in the study were all the women who delivered in this hospital or referred to this hospital within 42 days after delivery with puerperal sepsis diagnosed on clinical examination as well as with relevant investigation. The result depicted that there were 3316 obstetrical admission and out of these 129(3.89%) women had puerperal sepsis. Morbidities seen were septicaemia in 35(27.13%) and disseminated intra vascular coagulation in 23(17.82%) cases while 11 (8.52%) of the women died. Common risk factors were suboptimal hygiene as well as improper sterilization which resulted in severe health hazards like septicaemia, disseminated intra vascular coagulation as well as death.

Friday O, Edoja O, Osasu (2012) conducted a cross sectional study consisting of in-depth interviews with service providers, observation of clinical practices and examination of medical record from 63 public and private maternity care facilities in 8 local government areas of Edo state, Nigeria. The result reported that 13 % (21) had an ongoing programme for staff training on infection control. A high proportion of the health facilities reported that staff routinely wash their hands before and after sterile procedures, but only half of the facilities were observed to have 24 hour running water and only two-third had soap and antiseptic solution in delivery room, 11.1%(7) used recycled gloves.

Wycliffe (WHARC) (2011) conducted a descriptive cross sectional survey that focused on infection control and prevention practices of health care workers, within the maternity units of public hospitals in Kenya. The result revealed that 60.1% of health care workers had at least 3.5 years of training and only 19.4% had attended update courses. The infection control committees were present but not effective and their practices was found to be significantly below the recommended standards. And the prevalence of infection rate was 132 per 1000 patients by the 12 week of study.

Mehtar, Mavalankar (2011) conducted a pre- experimental research on 20 health care facilities from two districts in Gujarat state, India. Data collection was based on existing infection control guidelines for clean practice, clean equipments and clean

environment. The report revealed that surgical gloves were reused in 70% of facilities , especially for vaginal examination. Only 15% of facilities reported that wiping of surfaces was done immediately after delivery in labour unit. A few facilities had data on infections of 3% to 5%.

Anandalakshmy PN (2010) conducted a sixteen year study on maternal mortality in a referral hospitals in Northern India, revealed that puerperal sepsis was responsible for over 35% of maternal death because of poor practices of asepsis technique in labour room, poor general hygiene in hospital which is caused due to shortage of manpower and other inadequacies in hospitals.

Libetwa, Miriam Chilembwe (2010) conducted a descriptive study on knowledge, attitude and practice of midwives on infection control in maternity unit in Lusaka urban clinics, to determine the extent to which midwives working in labour ward understand, accept and practice according to infection control guideline in their working environment. The result depicted that midwives who qualified after 1990, practiced hand-washing more often than those who qualified before 1990. The contributing factors to non-practice of universal infection control stemmed from the lack of supplies, especially gloves, mask, plastic aprons, disinfectant etc. The institution didnot have any guidelines on infection control and moreover none of the respondents had ever attended any workshop on infection control.

Shamshad, Shamsher S, Rauf B (2010) conducted observational study in Ayub Teaching Hospital over a period of 3 years to evaluate morbidity and mortality from puerperal sepsis and to identify its risk factors. The result revealed that 23(25%) had foul smelling discharge, 41(44.5%) had retained product of conception, 10(10.8%) had pelvic abscess. The study concluded that majority of predisposing factors are preventable by optimal antiseptic measures throughout the process of labour.

Jothi Bala (2009) conducted a study on knowledge and practice of staff nurse regarding infection control in Maternal Child Health (MCH) area of selected hospital, Ludhiana, Punjab. A sample of 60 staff nurses were selected purposively. The final result depicted that staff nurses had efficient knowledge on infection control (80%) whereas level of practice were not appropriate to the standard.

SECTION 2.2: SCIENTIFIC REVIEWS RELATED TO EFFECTIVENESS OF INFECTION CONTROL STANDARDS ON PRACTICE IN LABOUR UNIT.

Jenifer, Paticia, Holly (2013) conducted a study to assess the presence and usefulness of written policies and practices on infection control consistent with the Centre of Disease Control and Prevention (CDC) guidelines in hospital labour and delivery unit(L&D). Out of 11,845 eligible nurses, 2641(22%) participated. A cross sectional descriptive evaluation was sent to 12,612 members of the association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) who reported working in L&D unit. The result showed respondent (73.8%) reported that CDC guidelines was very useful for infection control in L&D setting. The presence of written policies was very important for the implementation of infection control practice by labour and delivery nurses.

Suvarna (2013) conducted a randomised control trail to evaluate the effectiveness of video assisted demonstration on knowledge and practice regarding maintenance of asepsis in labour room among 60 ANM nurses at selected centres in Belganum, Karnataka. The result depicted that mean knowledge difference of post test and pre test in experimental group is 15.22 which is higher than the mean knowledge difference of post test and pre test in control group is 6.00. The mean practice difference of post test and pre test in experimental group is 10.78 which is higher than the mean practice difference of post test and pre test in control group is 2.22. This revealed that the effectiveness of video assisted demonstration on maintenance of asepsis in labour room.

Tamizharasik (2012) conducted an experimental research pre and post test design to assess the effectiveness of video assisted teaching programme on infection control practice in labour unit. The 50 samples were selected by cluster sampling technique in Primary Health Centre PHC of Salem district. Data collected by using closed ended questionnaires and observational checklist. The result reported that overall pre test mean practice score was 28.13(42.61%) whereas in post test it was 57.71(87.44%), revealed 44.33% enhancement of level of practice ,which suggested the effectiveness of video assisted teaching programme on infection control practice .

Kumar.M (2010) conducted a quasi experimental pre-test and post test control group design to assess the effectiveness of infection control guidelines on knowledge and practice among 60 staff nurses in Hussan. The study result showed that overall mean knowledge score (pre test =13.58; post test =26.66) and mean practice score was (pre test =43.39; post test =74.92). Knowledge (43.90%) and practice (54.60) score of staff nurse were less before administration of infection control guidelines. The overall post test mean% of knowledge and practice was higher (88% and 83.2%) in experimental group than in control group (37.86 and 54.6%) respectively, where t values were knowledge ($t = 26.67$ at $p < 0.001$) and practice ($t = 16.32$ at $p < 0.001$). The finding signifies that the infection control guidelines were effective to enhance the knowledge and practice.

Ann Mathew, (2010) conducted an experimental study on infection control guidelines in maternity ward among staff nurses in selected hospital, Yadgir, Karnataka. Purposive sampling techniques were utilized. The overall level of practice in pre test was only 52% and the post test revealed the impact of infection control guidelines has enhanced the level of practice to 80%. This revealed the effectiveness of the infection control guidelines.

Fairoza.M, (2009) conducted a study on effectiveness of self – instructional module on infection control practice among 50 staff nurses at K.L.E society hospital, Belgum. Data collected by using structured knowledge questionnaire. The findings of the study revealed that the mean post test knowledge score 52.09 was higher than the mean pre test knowledge score 29.83 and the t value = 33.72(<0.05). This indicated that self-instructional module was found to be an effective teaching strategy.

RESEARCH METHODOLOGY

This chapter describes the methodology adopted in this study to assess the effectiveness of infection control standards on practice among health care personnel working in labour unit at selected hospitals, Nagercoil.

This phase of the study included selecting a research design, variables, setting of the study, population and sample size, sampling technique, development and description of the tool, content validity, pilot study and reliability of the tool, data collection procedure and plan for data analysis.

3.1 RESEARCH APPROACH

The research approach used in this study was quantitative research approach.

3.2 RESEARCH DESIGN

Pre-experimental one group pre test post test design was adopted for this study. The researcher conducted the study in five settings. The aim of the study was to assess the effectiveness of infection control standards on practice among health care personnel working in labour unit using purposive sampling technique.

GROUP	PRE TEST O_1	INTERVENTION X	POST TEST O_2
Health care personnel	Assessment of pretest level of practice on infection control in labour unit by using observation checklist.	Lecture cum discussion with power point presentation on infection control standards.	Assessment of post test level of practice on infection control in labour unit by using observation checklist.

3.3 VARIABLES

3.3.1 Independent variable

The independent variable in the study was Infection Control Standards

3.3.2 Dependent variable

The dependent variable in the study was practices on infection control in labour unit among health care personnel.

3.3.3 Extraneous variables

The extraneous variables were age, professional qualification, designation, total years of experience in nursing services, total year of experience in labour unit and source of previous information.

3.4 SETTING OF THE STUDY

The study was conducted at

1. Subam Hospital, Vadasery, Nagercoil– 220 bedded hospital with 60 beds for maternity and 80 -100 deliveries per month are conducted in which 11 health care personnel are working in labour unit.
2. Jeyaharan Memorial Hospital, Nagercoil – 200 bedded hospital with 60 beds for maternity and 100 deliveries per month are conducted in which 10 health care personnel are working in labour unit.
3. Irene Hospital, Nagercoil - 200 bedded hospital with 100 bed for maternity and 100-150 deliveries per month are conducted in which 15 health care personnel are working in labour unit.
4. S.A.Catherine Booth Hospital, Nagercoil- 250 bedded hospital with 60 beds for maternity and 80 -100 deliveries per month are conducted in which 12 health care personnel are working in labour unit.
5. Gopala Pillai Hospital, Nagercoil -200 bedded hospital with 100 beds for maternity and 100 deliveries per month are conducted in which 12 health care personnel are working in labour unit.

3.5 POPULATION

3.5.1 Target Population

The target population of the study included all the health care personnel working in labour unit

3.5.2 Accessible population

The accessible population of the study included the health care personnel working in labour unit at selected hospital, Nagercoil.

3.6 SAMPLE

The study sample comprises of health care personnel who fulfilled the inclusion criteria

3.7 SAMPLE SIZE

A sample of 60 health care personnel from 5 settings who fulfilled the sample selection criteria were selected for the study.

3.8 CRITERIA FOR SAMPLE SELECTION

3.8.1 Inclusive Criteria.

1. The health care personnel working in labour unit of selected hospitals.
2. The health care personnel who are willing to participate in the study

3.8.2 Exclusive Criteria

1. The health care personnel those who are having less than 3 months experiences in labour unit
2. The health care personnel who have gained knowledge on infection control practice by attending in service education/ workshop/ seminar within 3 months of period.

3.9 SAMPLING TECHNIQUE

60 health care personnel were selected as study samples using non probability purposive sampling technique

3.10 DEVELOPMENT AND DESCRIPTION OF TOOL

After an extensive review of literature, discussion with the experts and with the investigators personal and professional experience, the investigator developed an observational checklist to assess the level of practice on infection control in labour unit among health care personnel.

The tool constructed in this study was divided into 2 parts

3.10.1 PART A: DATA COLLECTION TOOL

This consisted of 2 sections

Section A: Demographic Variables

Consisted of demographic variables which included age, professional qualification, designation, total years of experience in nursing services, total year of experience in labour unit and source of previous information.

Section B: Observation checklist to assess the level of practice on infection control

The observational check list consisted of 4 components to assess the level of practice on infection control among the health care personnel working in labour unit

Components	Questions
Clean birthing room environment	10
Infection control practice during labour and birth	33
Storage of clean and sterile supplies	4
Safe waste management	8
TOTAL	55

Scoring key

Each component had observation check list in the form of yes (or) no format. The score for YES was “1” and NO was "0".The total score of the components was "55".

The raw score was converted to percentage to interpret the level of practice on infection control in labour unit.

SCORE	LEVEL OF PRACTICE
<50 %	Fair practice
50 – 75%	Good practice
>75%	Excellent practice

3.10.2 PART B: INTERVENTION TOOL REGARDING INFECION CONTROL STANDARDS IN LABOUR UNIT

Infection Control Standards

Lecture cum discussion with power point presentation on infection control standards in labour unit which included the following components

1) Clean birthing room environment

-to maintain well organized and clutter free environment.

2) Infection control practice during labour and birth

- Personal protective equipment
- Hand hygiene
  - preparation before hand washing
  - five moments for hand washing
  - seven steps in hand washing
- Vaginal examination
- Preparation of mother
  - general preparation
  - preparation for delivery
- Preparation of delivery tray set up
- Preparation of health care personnel
- During the labour procedure
- After the labour procedure
- examining the perineum and suturing
- Clean and safety handle of contaminated surface and materials following procedures.

3) Storage of clean and sterile supplies

4) Safe waste management- when to dispose, where to dispose, how to dispose

3.11 CONTENT VALIDITY

The content validity of the data collection and intervention tool was ascertained from the expert's opinion in the following field of expertise.

Obstetrician and gynecologist – 2

Nursing experts – 3

Modifications were made as per the experts suggestions and incorporated in the tool. Experts suggested me to reduce the questions in observation checklist which was containing 70 questions, decreased to 55 questions.

3.12 ETHICAL CONSIDERATION.

The research study was approved by **Institutional Ethics Review Board (IERD)** held on February – 2013 by **International Centre For Collaborative Research (ICCR),** Omayal Achi College of Nursing.

The ethical principles followed in the study were,

A. BENEFICIENCE

The investigator followed the fundamental ethical principle of beneficence by adhering to

a. The right to freedom from harm and discomfort

The study was beneficial for the participants as it enhanced their improved practice on infection control in labour unit.

b. The right to protection from exploitation

The investigator explained the procedure and nature of the study to the participants and ensured that none of the participants would be exploited or denied fair treatment

B. RESPECT FOR HUMAN DIGNITY

The investigator followed the second ethical principle of respect for human dignity. It includes the right to self determination and the right to self disclosure.

a. The right to self determination

The investigator gave full freedom to the participants to decide voluntarily whether to participate in the study or to withdraw from the study and the right to ask questions

b. The right to full disclosure

The researcher has fully described the nature of the study, the person's right to refuse participation and the researcher's responsibilities based on which both oral and written informed consent was obtained from the participants.

C. JUSTICE

The researcher adhered to the third ethical principle of justice; it includes participants' right to fair treatment and right to privacy.

a. Right to fair treatment

The researcher selected the study participants based on the research requirements. The investigator followed hospital routine , during the period of data collection and explained about the intervention tool on infection control standards in labour unit to the health care personnel.

b. Right to privacy

The researcher maintained the study participants' privacy throughout the study.

D. CONFIDENTIALITY

The researcher maintained confidentiality of the data provided by the study participants.

3.13 RELIABILITY OF THE TOOL

The reliability of the tool for practice was elicited by inter rater method. The inter rater was explained about the tool and data collection procedure. The researcher done the inter rater reliability with the trained person and the information obtained was the same in all aspects and the number of observation was also same. The reliability score was r =0.86 respectively which shows positive correlation, indicates that the tool was reliable.

3.14 PILOT STUDY

Pilot study is the trial run for the main study. The refined tool was used for pilot study to test feasibility and practicability.

After getting ethical committee clearance from International Center for Collaborative Research, the pilot study was conducted at Sir Ivan Stedeford hospital, Chennai, in the month of June 2013 (10^{th} to 19^{th}) for a period of 10 days, after getting formal permission from Principal, Omayal Achi College of Nursing and the Managing Director, Sir Ivan Stedeford hospital.

The investigator conducted the pilot study by selecting 10 health care personnel who fulfilled the sample selection criteria by purposive sampling technique.

The investigator gave brief introduction about self and purpose of the study to the health care personnel and confidentiality regarding the data was assured to win their cooperation during data collection. After obtaining verbal and written informed consent for willingness to participate in the study, data collection was carried out by using observation checklist to assess the level of practice on infection control. Pre test level of practice was observed among 10 health care personnel working in labour unit in 2 days. The investigator took 30-40 minutes for each health care personnel to assess the level of practice on infection control. The data were kept confidential. The health care personnel were made to sit comfortably in well ventilated room and the infection control standards in labour were taught to the health care personnel by lecturer cum discussion method using power point presentation which took 30 minutes. After 7 days the post test was conducted for the health care personnel in 2 days to assess the level of practice on infection control in labour unit using the same tool.

The result of the pilot study revealed the feasibility and practicability of the study after which the plan for actual study was made.

The analysis of the data and the result of the pilot study gave the evidence that the infection control standards and the tool was reliable, feasible and practicable to implement in the main study.

3.15 PROCEDURE FOR DATA COLLECTION

A formal permission was obtained from Principal, Omayal Achi College of Nursing and ethical clearance was obtained from the International Centre for Collaborative Research

and written permission obtained from the Hospital Administrator and Medical Director of Subam Hospital, Jeyaharan Memorial Hospital, Irene Hospital, S.A.Catherine Booth Hospital, Gopala Pillai Hospital, Nagercoil.

The investigator selected 60 samples, who fulfilled sample selection criteria using purposive sampling technique. The data collection for the study was collected within the period of 4 week.

The investigator gave brief introduction about self and purpose of the study to health care personnel working in labour unit and confidentiality regarding the data was assured to win their cooperation during data collection after obtaining verbal and written informed consent for willingness to participate in the study.

The investigator selected one research assistant, a qualified M.Sc(N) in psychiatry department who was working as tutor in S.A. Catherine booth school of nursing. The investigator gave thorough description about the tool and explained the procedure for data collection. Researcher gave adequate training to research assistant.

The data collection was carried out by using observation checklist to assess the pre test level of practice on infection control among health care personnel working in labour unit. The investigator assessed the practice of 7-8 health care personnel per day which took 30-40 minutes for each.

The health care personnel were made to sit comfortably in well ventilated room and the infection control standards in labour unit were taught by lecturer cum discussion method using power point presentation which took 30 minutes. After 7 days the post test was conducted for the health care personnel to assess the level of practice on infection control in labour unit using the same tool.

The investigator observed the level of practice in three settings namely in, Jeyaharan Memorial Hospital, Irene Hospital, Gopala Pillai Hospital and whereas the trained researcher observed in two other settings namely Subam Hospital, S.A.Catherine Booth Hospital, Nagercoil.

SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY

TARGET POPULATION

All Health care personnel

⬇

ACCESSIBLE POPULATION

All health care personnel working in labour unit at selected hospitals

⬇

DESIGN

Pre-experimental one group pre test post-test design.

SAMPLING

60 health care personnel working in labour unit and who fulfils the inclusion criteria

⬇

METHOD OF DATA COLLECTION

Observation checklist to assess the level of practice on infection control in labour unit

⬇

PRETEST

Assessment of level of practice on infection control

⬇

INTERVENTION TOOL

Infection control standards

⬇

POSTTEST

Assessment of level of practice on infection control

⬇

DATA ANALYSIS AND INTERPRETATION

3.16 PLAN FOR DATA ANALYSIS

Data collected was analyzed by using both descriptive and inferential statistics.

3.16 .1 Descriptive statistics

1. Frequency and percentage distribution was used to analyze the demographic data of health care personnel
2. Mean and standard deviation was used to assess the pre and post test level of practice on infection control in labour unit among health care personnel.

3.16.2 Inferential Statistics

1. Paired ‘t’ test was used to assess the comparison of pre and post test level of practice on infection control in labour unit among health care personnel.
2. ANOVA was used to associate the selected demographic variables with mean differed level of practice on infection control in labour unit among health care personnel.

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data collected from 60 health care personnel working in labour unit at selected hospitals in Nagercoil to assess the effectiveness of infection control standards on practice in labour unit.

The data was organized, tabulated and analyzed according to the objectives of the study. The findings based on the descriptive and inferential statistical analysis are presented under the following sections.

ORGANISATION OF DATA

SECTION4.1: Description of the demographic variables of health care personnel working in labour unit.

SECTION4.2: Assessment of pre and post level of practice on infection control in labour unit among health care personnel.

SECTION4.3: Comparison of the pre and post test level of practice on infection control in labour unit among health care personnel.

SECTION4.4: Association of selected demographic variables with mean differed level of practice on infection control in labour unit among health care personnel.

SECTION 4.1 : DESCRIPTION OF DEMOGRAPHIC VARIABLES OF HEALTH CARE PERSONNEL WORKING IN LABOUR UNIT.

Table 4.1.1 : Frequency and percentage distribution of demographic variables of health care personnel with respect to age, professional qualification, designation and total year of experience in nursing services.

N = 60

	Demographic Variables	**No.**	**%**
1	**Age in years**		
	<20	0	0.00
	21 – 25	18	30.00
	26 – 30	12	20.00
	>30	30	50.00
2	**Professional Qualification**		
	ANM	0	0.00
	GNM	42	70.00
	B.Sc.(N)	18	30.00
	Post B.Sc.(N)	0	0.00
3	**Designation**		
	Staff nurse	26	43.33
	Senior staff	29	48.33
	Ward in charge	5	8.33
4	**Total year of experience in nursing service**		
	1 - 3 years	7	11.67
	4 - 6 years	18	30.00
	7 - 10 years	19	31.67
	>10 years	16	26.67

Table 4.1.1 depicts the frequency and percentage distribution of demographic variables of health care personnel with respect to age, professional qualification, designation and total year of experience in nursing service.

With regard to age in years 30(50%) were in age group of > 30yrs, 42(70%) were educated up to GNM, 29(48.33%) were designated as senior staff and 19(31.67%) had 7-10 years of experience in nursing service.

Table 4.1.2 : Frequency and percentage distribution of demographic variables of health care personnel with respect to total years of experience in labour unit, previous information on infection control standards and source of information.

N=60

	Demographic Variables	No.	%
1	**Total year of experience in labour unit**		
	1 - 3 years	16	26.67
	4 - 6 years	17	28.33
	7 - 10 years	16	26.67
	>10 years	11	18.33
2	**Previous information on infection control standards**		
	Yes	6	10.00
	No	54	90.00
3	**If yes, source of information**		
	In-service education	0	0.00
	Workshop	6	10.00
	Others	0	0.00

Table 4.1.2 depicts the frequency and percentage distribution of demographic variables of health care personnel with respect to total years of experience in labour unit, previous information on infection control standards and source of information.

With regard to total years experience in labour unit 17(28.33%) had 4-6 yrs of experiences, 54(90%) had not received any previous information on infection control standards and 6(10%) had attended workshop on infection control standards.

Table 4.1.1 – 4.1.2 illustrates the frequency and percentage distribution of demographic variables of health care personnel working in labour unit.

SECTION 4.2 : ASSESSMENT OF PRE AND POSTTEST LEVEL OF PRACTICE ON INFECTION CONTROL IN LABOUR UNIT AMONG HEALTH CARE PERSONNEL.

Table 4.2.1 : Frequency and percentage distribution of pre test level of practice on infection control in labour unit among health care personnel.

N=60

Aspects	Fair Practice (<50%)		Good Practice (50 – 75%)		Excellent Practice (>75%)	
	No.	%	No.	%	No.	%
Clean Birthing room environment	40	66.67	20	33.33	0	0
Infection Control practice during labour and birth	60	100.0	0	0	0	0
Storage of clean and sterile supplies	0	0	0	0	60	100.0
Safe waste management	60	100.0	0	0	0	0

Table 4.2.1 depicts the frequency and percentage distribution of pretest level of practice on infection control in labour unit among health care personnel.

With regard to pre test level of practice on infection control, 40(66.67%), 60(100%), 60(100%), had fair practice on clean birthing room environment, infection control practice during labour and birth and in safe waste management respectively, 60(100%) had excellent practice in storage of clean and sterile supplies.

Table 4.2.2: Frequency and percentage distribution of post test level of practice on infection control in labour unit among health care personnel.

N=60

Aspects	Fair Practice (<50%)		Good Practice (50 – 75%)		Excellent Practice (>75%)	
	No.	%	No.	%	No.	%
Clean Birthing room environment	0	0	36	60.0	24	40.0
Infection Control practice during labour and birth	0	0	2	3.33	58	96.67
Storage of clean and sterile supplies	0	0	0	0	60	100.0
Safe waste management	0	0	60	100.0	0	0

Table 4.2.2 depicts the frequency and percentage distribution of post test level of practice on infection control in labour unit among health care personnel.

With regard to post test level of practice on infection control, 36(60%) and 60(100%) had good practice on clean birthing room environment and in safe waste management respectively, 58(96.67%) and 60(100%) had excellent practice on infection control during labour and birth and in safe waste management respectively.

Table 4.2.1 – 4.2.2 illustrates the pre and post test level of practice on infection control in labour unit among health care personnel and inferred that Infection Control Standards was effective in improving the level of practice on infection control.

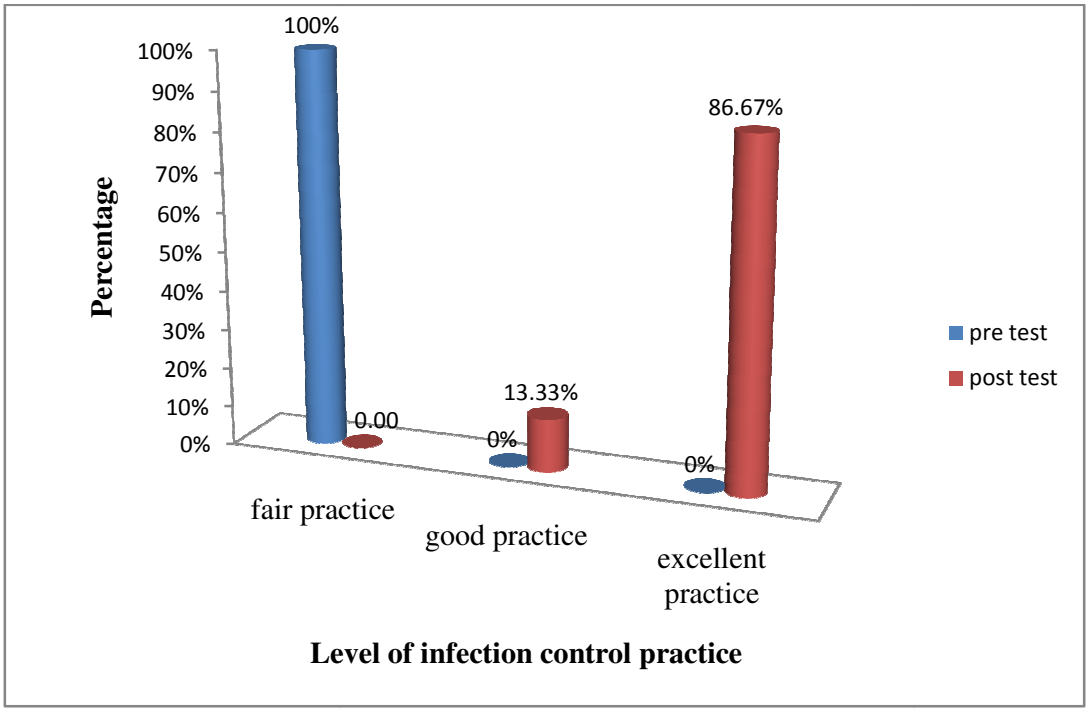

Fig 4.2.1: Percentage distribution of the overall pretest and post test level of practice on infection control in labour unit among health care personnel.

With regard to pretest level of practice of health care personnel, majority 60(100%) had fair practice and none of them had good and excellent practice on infection control in labour unit.

With regard to post test level of practice of health care personnel, 8(13.33%) had good practice and 52(86.67%) had excellent practice on infection control in labour unit.

SECTION 4.3: COMPARISON OF PRE AND POST TEST LEVEL OF PRACTICE ON INFECTION CONTROL IN LABOUR UNIT AMONG HEALTH CARE PERSONNEL

Table 4.3.1 : Comparison of pre and post test level of practice on infection control in labour unit among health care personnel.

N=60

Practice	Mean	S.D	Paired 't' Value
Pretest	21.47	1.92	t = 59.145*** p = 0.001 (S)
Post Test	43.73	2.02	

***p<0.001, S – Significant

Table 4.3.1 depicts the comparison of pre and post test level of practice on infection control in labour unit among health care personnel.

When comparing the pre and posttest level of practice, the pre test mean score was 21.47 with the standard deviation of 1.92 and the post test mean score was 43.73 with the standard deviation of 2.02. The calculated't' value was 59.14 which was greater than the table value and this indicated that there was statistically high significant difference at $p < 0.001$ level.

SECTION 4.4 : ASSOCIATION OF SELECTED DEMOGRAPHIC VARIABLES WITH MEAN DIFFERED LEVEL OF PRACTICE ON INFECTION CONTROL IN LABOUR UNIT AMONG HEALTH CARE PERSONNEL.

Table 4.4.1 : Association of selected demographic variables with mean differed level of practice on infection control in labour unit among health care personnel.

N=60

Demographic Variables	Pretest		Post Test		Mean Diff.		ANOVA/ Unpaired 't' Value
	Mean	S.D	Mean	S.D	Mean	S.D	
Age in years							F = 0.916 p = 0.406 (NS)
<20	-	-	-	-	-	-	
21 – 25	21.11	1.78	44.05	1.95	22.94	2.82	
26 – 30	21.42	1.62	42.92	2.15	21.50	3.12	
>30	21.70	2.12	43.87	1.99	22.17	2.90	
Professional Qualification							F= 0.084 p = 0.933 (NS)
ANM	-	-	-	-	-	-	
GNM	21.40	2.12	43.69	2.06	22.28	3.12	
B.Sc.(N)	21.61	1.38	43.83	1.98	22.22	2.46	
Post B.Sc.(N)	-	-	-	-	-	-	
Designation							F = 0.072 p = 0.931 (NS)
Staff nurse	21.35	1.65	43.61	1.98	22.27	2.89	
Senior staff	21.38	2.08	43.72	2.12	22.34	2.93	
Ward in charge	22.60	2.30	44.40	1.95	21.80	3.56	

NS = Not significant

Table 4.4.1 infers the association of selected demographic variables with mean differed level of practice on infection control in labour unit among health care personnel.

The demographic variables had shown statistically no significant association with the mean differed level of practice on infection control in labour unit among health care personnel.

DISCUSSION

The study was conducted to evaluate the effectiveness of infection control standards on practice among health care personnel working in labour unit.

This chapter deals with the discussion on the findings of the study interpreted from the statistical analysis. The findings are discussed in relation to the objectives of the study, related literature and null hypotheses specified in this study.

5.1 Description of the demographic variables of health care personnel working in labour unit.

With regard to age in years 30(50%) were in the age group of > 30yrs , 42(70%) were educated up to GNM, 29(48.33%) were designated as senior staff , 19(31.67%) had 7-10 years of experience in nursing service ,17(28.33%) had 4-6 years of experiences in labour unit, 54(90%) had not received any previous information on infection control standards and 6(10%) had attended workshop on infection control standards.

5.2 The first objective was to assess the pre and post test level of practice on infection control in labour unit among health care personnel.

The analysis in table 4.2.1 depicted the frequency and percentage distribution of pre test level of practice on infection control in labour unit among health care personnel and it revealed that 40(66.67%), 60(100%), 60(100%) had fair practice on clean birthing room environment, infection control practice during labour and birth and in safe waste management respectively, 60(100%) had excellent practice in storage of clean and sterile supplies.

The analysis in table 4.2.2 depicted the frequency and percentage distribution of post test level of practice on infection control in labour unit among health care personnel and it revealed that 36(60%) and 60(100%) had good practice on clean birthing room environment and in safe waste management respectively, 58(96.67%) and 60(100%) had excellent practice on infection control during labour and birth and in storage of clean and sterile supplies respectively.

The analysis in fig.4.2.1showed the overall percentage distribution of pre test and post test level of practice on infection control in labour unit among health care personnel which revealed that in pre test majority 60(100%) had fair practice and in post test , 8(13.33%) had good practice and 52(86.67%) had excellent practice on infection control in labour unit.

The above findings were consistent with a structured assessment study conducted by **WC Huskins, V.Manchandaz (2013)** of different facilities in Rajesthan and Odisha on infection control practice in labour and delivery room. The team completed the assessment in 5 community health centres and district hospitals using the infection control assessment tool. The result reported that cleanliness and general hygiene were conspicuously absent; hand hygiene practices were poor due to lack of awareness and supplies and there were concerns regarding storage and disposal of bio-medical waste. The study concluded that ensuring training of staff on asepsis procedures and uninterrupted supplies to labour and delivery room would enhance the infection control practice in labour room.

The above findings were consistent with a study conducted by **Jothi Bala (2009)** on knowledge and practice of staff nurses regarding infection control in MCH area of selected hospitals, in Ludhiana, Punjab. A sample of 60 staff nurses were selected purposively. The final result depicted that staff nurses had efficient knowledge on infection control (80%) whereas level of practice were not appropriate to the standard.

5.3 The second objective was to compare the pre and post test level of practice on infection control in labour unit among health care personnel.

The analysis in table 4.3.1 showed the comparison of the pre and post test level of practice on infection control in labour unit among health care personnel.

When comparing the pre and post test level of practice, the pre test mean score was 21.47 with the standard deviation of 1.92 and post test mean score was 43.73 with the standard deviation of 2.02. The calculated‘t’ value was 59.14 which was greater than the table value and this indicated that there was statistically high significant difference at $p < 0.001$ level.

The above description clearly highlights that infection control standards had a significant impact in improving the level of practice on infection control in labour unit among health care personnel.

The above findings were consistent with a quasi- experimental study conducted by **Tamizharasi .k (2012)**, to assess the effectiveness of video- assisted teaching programme on infection control practice in labour unit at PHC of Salem district. The result depicted that overall pre test mean knowledge score was 28.13(42.61%) whereas in post test mean was 57.71(87.44%), revealing 44.83% enhancement of knowledge score. Highly significant difference was found between the total knowledge score of pre and post test revealing effectiveness of video assisted teaching programme on infection control practice.

The above findings were consistent with a study conducted by **Fairoza.M, (2009),** to assess the effectiveness of self- instructional module on infection control practice among 50 staff nurses at K.L.E society hospital, Belgium. Data collected by using structured knowledge questionnaire. The findings of the study revealed that the mean post test knowledge score 52.09 which was higher than the mean pre test knowledge score 29.83 and calculated 't' value 33.72 was highly significant. This indicated that self-instructional module was found to be an effective teaching strategy.

The conceptual framework adopted for this study was **Wiedenbach's Helping Art of Clinical Theory**, which guided the researcher to accomplish the study. The investigator perceived the need of implementing the infection control standards in labour unit among health care personnel by lecture cum discussion with PowerPoint presentation. The intervention which includes the components as clean birthing room environment, infection control during labour and birth, Storage of clean and sterile supplies and safe waste management.

The health care personnel working in labour unit were the recipient in this study, the investigator identified the need by assessing the pre test level of practice on infection control and prescribed intervention Infection Control Standards to minister the need of the health care personnel. The goal was to improve the level of practice on infection control in labour unit through the means of Infection Control Standard by using lecture

cum discussion with PowerPoint presentation. The investigator validated the need by assessing the post test level of practice on infection control which revealed that there was improve in level practice in labour unit among health care personnel.. Thus proving that intervention Infection Control Standards was effective in enhancing the level of practice to control infection in labour unit among health care personnel.

Hence the null hypotheses **NH_1** which was stated earlier that **"There is no significant difference between the pre and post test level of practice on infection control in labour unit among health care personnel at p <0.05 level"** was **rejected.**

5.4 The third objective was to associate the selected demographic variables with mean differed level of practice on infection control in labour unit among health care personnel.

The analysis in table 4.4.1 revealed that there was no significant association of mean differed level of practice on infection control in labour unit among health care personnel.

Hence the null hypotheses **NH_2**, which was stated earlier that **"There is no significant association of selected demographic variables with mean differed level of practice on infection control in labour unit among health care personnel at p < 0.05 level''** was **accepted.**

The above discussions clearly represent that there has been a statistically significant impact of Infection Control Standards on practice in labour. This draws conclusion for the study that can be used as an effective tool by Midwives, Community Health Nurse, Nurse Educator, Nurse Administrator, Nurse Researcher and Health care Professionals in improving the level of practice on infection control in labour unit among health care personnel.

SUMMARY, CONCLUSIONS, IMPLICATIONS. RECOMMENDATIONS AND LIMITATIONS

This chapter presents the summary, conclusion, implications, recommendations and limitation of the study.

6.1 SUMMARY

Child birth is a momentous occasion in life of a couple. Birth process is an ecstatic experience of unparralled joy, it is a gateway to the next chapter of womanhood and an experimental lesson in personal power and trust of divine. Labour, the culmination of pregnancy, is the start of an incredible journey with great psychological, social and emotional meaning for the mother and her family. During this incredible journey of childbirth, woman's genital tract is prone to infection due to sub standard level of infection control practice.

Infection prevention and control is integral to safe, effective and ethical nursing practice. Ensuring the use of infection control standards is an important component of nursing. Worldwide escalation of the use of infection control standard will endorse quality promotion of health care which is safe for mother and health care personnel in labour unit.

The purpose of the study was to assess the effectiveness of Infection Control Standards on practice among health care personnel working in labour unit.

6.1.1 The objectives of the study were

1. To assess the pre and post test level of practice on infection control in labour unit among the health care personnel.
2. To compare the pre and post test level of practice on infection control in labour unit among health care personnel.
3. To associate the selected demographic variables with mean differed level of practice on infection control in labour unit among health care personnel.

6.1.2 The study was based on the assumptions that

1. Health care personnel may have good level of practice to control infection in labour unit.
2. Imparting information regarding infection control standards may enhance the level of practice to control infection in labour unit among the health care personnel.

6.1.3 The null hypotheses formulated were

NH_1: There is no significant difference between the pre and post test level of practice on infection control in labour unit in among health care personnel at $p < 0.05$ level

NH_2: There is no significant association of selected demographic variables with mean differed level of practice on infection control in labour unit among health care personnel.

The investigator has done an in depth review of literature which included both theoretical and empirical related studies and statistics which provided a strong foundation for the study, including the basis for the conceptual framework and formation of the tool and to select the research methodology, namely Pre-experimental one group pre test post-test design was found to be suitable for the study.

The conceptual framework for the study was based on **WIEDENBACH'S HELPING ART OF CLINICAL NURSING THEORY,** which provided a comprehensive framework for evaluation of the tool.

The content validity of the data collection tool and the intervention tool was obtained from 2 medical experts and 3 nursing experts in the field of obstetrics and gynecology.

The reliability of the knowledge tool was determined by inter rater method and feasibility of the study was analyzed by conducting a pilot study at Sir Ivan Stedeford Hospital, Chennai and the study findings determined the high reliability of the tool.

The main study was conducted at 5 selected hospitals in Nagercoil. Purposive sampling technique was used to select the samples and the sample size was 60 health

care personnel who fulfilled the sample selection criteria and ethical aspects were maintained throughout the study.

An observational checklist was used for data collection. Data collected were analyzed and interpreted based on the objectives and null hypotheses using descriptive and inferential statistics. The findings revealed that there was significant difference in the level of practice on infection control in labour unit among health care personnel after the administration of Infection Control Standards.

6.1.4 The major findings of the study revealed that

In pre test level of practice among health care personnel ,40(66.67%), 60(100%), 60(100%) had fair practice on clean birthing room environment, infection control practice during labour and birth and in safe waste management respectively, 60(100%) had excellent practice in storage of clean and sterile supplies.

In post test level of practice among health care personnel, 36(60%) and 60(100%) had good practice on clean birthing room environment and in safe waste management respectively, 58(96.67%) and 60(100%) had excellent practice on infection control during labour and birth and in storage of clean and sterile supplies respectively.

When comparing the pre and post test level of practice among health care personnel, the pre test mean score was 21.47 with the standard deviation of 1.92 and post test mean score was 43.73 with the standard deviation of 2.02. The calculated‘t’ value was 59.14 which was greater than the table value and this indicated that there was statistically high significant difference at $p < 0.001$ level.

The analysis also revealed that there was no significant association of mean differed level of practice on infection control in labour unit among health care personnel.

6.2 CONCLUSION

The present study assessed the effectiveness of Infection Control Standards on practice among health care personnel working in labour unit. The study findings concluded that there was a significant difference in the level of practice on infection

control in labour unit among health care personnel after the administration of Infection Control Standards.

6.3 IMPLICATIONS

The investigator has drawn the following implications from the study, which is of vital concern in the field of Nursing Practice, Nursing Administration, Nursing Education and Nursing Research.

6.3.1 Nursing Practice

- Nurses play a vital role in giving safe and effective nursing care to the mother. By enhancing the nurses' level of practice on infection control standards, one can ensure a safe and sound infection control practice.
- This helps to boost the image of the nurses as an indispensable member of the health care team with their own scientific body of knowledge and scope of practice.
- Periodic training should be given to the nurses to improve their skill in performing infection control standards in labour unit.

6.3.2 Nursing Education

- Strengthening the nursing curriculum of the nurses to exceed them in knowledge and practice on infection control standards.
- Students should be encouraged to have hands on practice in infection control.
- In service education, workshop/ conference can be conducted on Infection control standards to enhance the level of practice.

6.3.3 Nursing Administration

- The nurse administrator has an important role in creating awareness to increase the level of practice on infection control in labour unit, in order to develop personal and professional knowledge.
- The nurse administrator can organize continuing nursing education on infection control standards in labour unit.

- The nurse administrator can involve government and nongovernmental agencies to implement the policies and protocols on infection control standards at various levels of health care delivery system.

6.3.4 Nursing Research

- The findings of the study can be disseminated to nurse practioners and student nurses through internet, journals, literature etc.,
- The findings of the study will help the professional nurses and nursing students to gain knowledge on infection control standards in labour unit.
- The generalization of the study result can be made by further replication of the study in various setting and larger population.

6.4 RECOMMENDATIONS

1. The researcher will forward the evidence to ICCR and will recommend the utilization of infection control standards in the clinical settings at affiliated hospitals of Omayal Achi College of Nursing..
2. The researcher will recommend the utilization of infection control standards in labour unit at OACHC.
3. In future the hospital nursing administration staff can utilize the infection control standards in labour unit to strengthen the quality of maternity services.

The study recommends the following for future research

1. Similar study can be replicated on a larger sample to increase validity and generalizability of findings.
2. A study can be conducted to assess the effectiveness of infection control standards in labour unit by selecting labour unit as sample.
3. A study can be conducted to evaluate the quality of nursing care.

6.5 LIMITATIONS

1. Researcher found it very difficult to get reviews related to infection control practice among nurses.
2. The researcher found it very difficult to get permission from various hospitals, to conduct the main study.

6.6 PLAN FOR RESEARCH DISSEMINATION

The research findings will be disseminated the in National and International conferences conducted at various institutions and also will publish in Nursing journals

6.7 PLAN FOR RESEARCH UTILIZATION

The research findings will be incorporated in various maternity centres in caring out infection control standards especially in OACHC and Sir Ivan Stedeford Hospital.

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APPENDIX – C

LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY

From

Ms.Benita.D
M. Sc (N) II year,
Omayal Achi College of Nursing,
puzhal, Chennai – 600 066

To

Respected Madam / Sir,

Sub: Requisition for expert opinion on suggestion for content validity of the tool

I am Ms. **Ms.Benita.D** doing my M.Sc Nursing II year specializing in Obstetrics and Gynaeclogical Nursing at Omayal Achi College of Nursing. As a part of my research project to be submitted to the Tamilnadu Dr.M.G.R University and in partial fulfillment of the University requirement for the award of M.Sc (N) degree, I am conducting **"A pre experimental study to assess the effectiveness of infection control standards on practice among health care personnel working in labour unit at selected Hospitals, Nagercoil".**

I have enclosed my data collection tool and intervention tool for your expert guidance and validation. Kindly do the needful.

Thanking you,

Yours Faithfully,

(Benita.D)

Enclosures:
1. Research proposal
2. Data collection tool
3. Intervention tool
4. Content validity form
5. Certificate for content validity

LIST OF EXPERTS FOR CONTENT VALIDITY

MEDICAL EXPERTS:

1. **Dr. Mrs. Sucharitha MBBS, DNB (O&G),**
   Obstetrician and Gynecologist,
   Sir Ivan Stedeford Hospital,
   Ambattur, Chennai – 600 053.

2. **Dr.Mrs.Sandy jaison MD (OG), DNB (O&G),**
   Obstetrician and Gynecologist,
   Cherish Hospital,
   Thirumullaivoiyal, Chennai – 600 053.

NURSING EXPERTS:

1.Mrs.Sathyalatha
Professor,
Obstetric and Gynecological Nursing,
Sree Balaji College of Nursing,
Chennai.

2.Ms. Latha
Professor
Obstetric and Gynecological Nursing
SRM College of nursing,
chennai.

3. Mrs. Hema Malini
Nurse educator,
Obstetric and Gynecological Nursing,
Vijaya Hospital,
Chennai.

APPENDIX – D

CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work "**A pre experimental study to assess the effectiveness of infection control standards on practice among health care personnel working in labour unit at selected Hospitals, Nagercoil",** done by **Ms.Benita.D** M.Sc (Nursing) II year student of Omayal Achi College of Nursing, Chennai, is edited for English language appropriateness by _____.

Seal with Date **Signature**

APPENDIX – E

INFORMED CONSENT REQUISITION FORM

Good morning,

I **Ms. Benita.D** M.sc.(Nursing) II year student from Omayal Achi College of Nursing, Chennai, conducting "**A pre experimental study to assess the effectiveness of infection control standards on practice among health care personnel working in labour unit at selected Hospitals, Nagercoil"** as a partial fulfilment of the requirement for the degree of M.Sc. Nursing under the Tamil Nadu Dr. M.G.R. Medical University.

I assure you that information provided by you will be kept confidential. So, I request you to kindly cooperate with me and participate in this study by giving your frank and honest responses to the questions being asked.

Thank You

INFORMED WRITTEN CONSENT FORM

I understand that I am being asked to participate in a research study conducted by **Ms. Benita.D** M.Sc (N) student of Omayal Achi College of Nursing. This research study will assess the **"Effectiveness of infection control standards on practice among health care personnel working in labour unit at selected Hospitals, Nagercoil."**

If I agree to participate in the study, I will be interviewed. The interview may be recorded and will take place in privacy. No identifying information will be included when the interview is transcribed. I understand that there are no risks associated with this study.

I realize that the knowledge gained from this study may help either me or other people in the future. I realize that my participation in this study is entirely voluntary, and I may withdraw from the study at any time I wish. If I decide to discontinue my participation in this study, I will continue to be treated in the usual and customary fashion.

I understand that all study data will be kept confidential. However, this information may be used in nursing publication or presentations. If I need to, I can contact **Ms. Benita.D** M.Sc.(N) II year student of Omayal Achi College of Nursing, #45 Ambattur road, Puzhal, Chennai at any time during the study.

The study has been explained to me. I have read and understood this consent form, all of my questions have been answered, and I agree to participate. I understand that I will be given a copy of this signed consent form.

---------- **----------**

Signature of Participant **Date:**

---------- **----------**

Signature of Investigator **Date:**

APPENDIX – F

Section A: Demographic data

Sample No:

1. Age of nurse in years
   a) < 20
   b) 21-25
   c) 26-30
   d) >30

2. Professional qualification
   a) ANM
   b) GNM
   c) B.Sc(N)
   d) Post B.Sc(N)

3. Designation
   a) Staff nurse
   b) Senior staff
   c) Ward in charge

4. Total year of experience in nursing service
   a) 1-3 years
   b) 4-6years
   c) 7-10years
   d) >10years

5. Total year of experience in labor unit
   a) 1-3 years
   b) 4-6 years
   c) 7-10 years
   d) >10 years

6. Did you receive previous information about infection control practice?

a) Yes

b)No

7. If yes, from which source?

a) In-service education
b) Workshop
c) Others

SECTION – B

Observational checklist to assess the level of practice on infection control in labour unit

S.No	Questions	Yes	No
	CLEAN BIRTHING ROOM ENVIRONMENT		
1	Does the labor floor is wet mopped in each shift with Lysol/ chlorine solution or any other disinfectant?		
2	Does the delivery cot, furniture, doors …etc are cleaned and disinfected with alcoholic rub daily?		
3	Does the external cables, fetal monitors and accessories are cleaned with alcoholic rub after each patient use?		
4	Does the hand washing area / sink are kept clean for the next use?		
5	Does the suction bottle and oxygen flow meter is cleaned daily with hypochloride solution?		
6	Does the suction bottle emptied on every 12^{th} hourly?		
7	Does the suction tube changed once in a week?		
8	Is the oxygen humidifier cleaned with alcoholic rub daily ?		
9	Is traffic control is maintained in labor unit?		
10	Does the sink area free from extraneous items such as instruments, medicine cup etc during hand washing?		

S.No	Questions	Yes	No
	INFECTION CONTROL PRACTICE DURING LABOR AND BIRTH		
11	Is jewels and wrist watch removed before hand washing?		
12	Is hand washing done before clean and aseptic procedure?		
13	Does surgical hand washing is done at duration of 2 to 3 minutes before performing aseptic procedure?		
14	Does hand washing performed immediately after removal and disposable of gloves?		
15	Are hands rinsed with sufficient running water?		
16	Does Gloves are changed between caring different patients?		
17	Does personal sterile glove is used by the health care personnel in labor unit ?		
18	Does personal sterile gown is used by the health care personnel in labor unit ?		
19	Does personal protective eye care is used by the health care personnel in labor unit?		
20	Does personal fluid resistant surgical mask is used by the health care personnel in labor unit?		
21	Does personal sterile cap is used by the health care personnel in labor unit?		
22	Does personal shoe cover is used by the health care personnel in labor unit?		

S.No	Questions	Yes	No
23	Does external genitalia cleaned before vaginal examination?		
24	Whether the vaginal examination is carried in a period of every 4 hours, if in case of normal mother?		
25	Does external genitalia preparation of mother is done with antiseptic solution before the birth procedure?		
26	Does moisture proof pad is kept under the buttocks and the dependent end is placed in kick bucket before delivery?		
27	Whether the opened sterile vaginal delivery pack is used within 12 hours after set up?		
28	Does non-touch technique is used while conducting delivery?		
29	Is clean cloth is kept ready to receive baby?		
30	Is absorbent sterile gauze is placed over the scissor while cutting the umbilical cord?		
31	Is placenta after examination disposed in a yellow bag container?		
32	Does the disposal of all the contaminated medical waste in water proof container is done immediately after the procedure?		
33	Does the external genitalia are washed with antiseptic solution after delivery?		
34	Does the reusable instruments are sent for sterilizing process immediately after the procedure?		

S.No	Questions	Yes	No
35	Does hand washing done before proceeding with episiotomy suturing procedure?		
36	Does the soiled personal protective equipment changed before starting suturing procedure?		
37	Is sterile suturing set is ready before the procedure?		
38	Is the episiotomy area draped with sterile central hole towel before proceeding suturing procedure?		
39	Does sutured area are washed with antiseptic solution?		
40	Does sterile pad is kept aseptic manner in perineum after suturing?		
41	Does the contaminated surfaces (labor cot, procedure table, spilled floor) cleaned with soaked cloth in 0.5% chlorine solution immediately after delivery?		
42	Does the contaminated drapes and other linens placed immediately in water proof bag and transported to processing area?		
43	Does the client's soiled clothing placed in plastic bag while giving to the family members?		
	STORAGE OF CLEAN AND STERILE SUPPLIES		
44	Does the clean and sterile supplies stored in dust free environment?		
45	Does the sterile items labeled with name of items and date of sterilization?		
46	Does the sterile pack is used within 14 days of sterilization?		

S.No	Questions	Yes	No
47	Does sterile pack is checked routinely for expiry date?		
	SAFE WASTE MANAGEMENT		
48	Does the pedal operated lids waste been used in labour unit?		
49	Does the bin having well fitting lids?		
50	Does Yellow/ Red code bin are used for placenta, body fluids and blood disposal?		
51	Does Blue code bin used for sharp waste disposal?		
52	Does black code bin used for general waste disposal?		
53	Does disposal bags changed immediately as bin is $3/4^{th}$ filled?		
54	Does the waste bag/containers sealed appropriately before the disposal/transporting/ processing?		
55	Does hand hygiene maintained after waste handling/ disposal		

APPENDIX – G

PLAGIARISM REPORT

Plagiarism Detector - Originality Report

Plagiarism Detector Project: [http://plagiarism-detector.com]

Originality report details:	
Generation Time and Date:	8/10/2014 3:54:31 PM
Document Name:	Chapters.docx
Document Location:	E:\Omayal(2014)\Benitatina\09.08.2014\ Chapters.docx
Document Words Count:	11,706

Plagiarism Detection Chart:

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Referenced 3% / **Linked 0%**

Original - 97% / **0% - Plagiarism**

Signature of the Candidate **Signature of the Principal**

APPENDIX – H

CODING FOR DEMOGRAPHIC VARIABLES

Demographic variables	**CODE**
1. Age (in years)	
a. < 20 years	1
b. 21 to 25 years	2
c. 26-30 years	3
d. >30 years	4
2. Professional qualification	
a) ANM	1
b) GNM	2
c) B.Sc(N)	3
d) Post B.Sc(N)	4
3. Designation	
a) Staff nurse	1
b)Senior staff	2
c)Ward in charge	3
4. Total year of experience in nursing service	
a) 1-3 years	1
b) 4-6years	2
c) 7-10years	3
d) >10years	4
5. Total year of experience in labor unit	
a) 1-3 years	1
b) 4-6 years	2
c) 7-10 years	3
d) >10 years	4

6. Did you receive previous information about infection control practice?

a) Yes 1

b) No 2

7. If yes, from which source?

a) In-service education 1

b) Workshop 2

c) Others 3

SCORING KEY

SECTION – B: This section consist of observation checklist of 4 components to assess the level of practice on infection control among the health care personnel working in labour unit

Components	Questions
Clean birthing room environment	10
Infection control practice during labour and birth	33
Storage of clean and sterile supplies	4
Safe waste management	8
TOTAL	55

Scoring Key

It consists of 55 questions to assess the level of practice on infection control in labour unit. Each component had observation checklist in the form of yes (or) no format. The score for YES was '1' and NO was '0'. The total score of the components were '55'. The raw score was converted to percentage to interpret the level of practice on infection control in labour unit.

SCORE	LEVEL OF PRACTICE
< 50 %	Fair practice
50 – 75%	Good practice
>75%	Excellent practice

APPENDIX – I

BLUE PRINT

S.No.	Content	Item	Total items	Percentage
1	**Demographic variables**	1-7	7	**100**
II	**Observation checklist**			
	Clean birthing room environment.	1-10	10	
	Infection control practice during labour and birth.	11- 43	33	
	Storage of clean and sterile supplies.	44- 47	4	
	Safe waste management.	48- 55	8	
	Total	**55**	**55**	**100**

APPENDIX – K

DISSERTATION EXECUTION PLAN – GANTT CHART

S.NO	ACADEMIC CALENDER MONTHS	OCTOBER 2012 to SEPTEMBER 2013												OCTOBER 2013 to SEPTEMBER 2014											
		O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
A	**Conceptual phase**																								
1	Problem identification																								
2	Literature review																								
3	Clinical fieldwork																								
4	Theoretical framework																								
5	Hypothesis formulation																								
B	**Design & planning phase**																								
6	Research design																								
7	Intervention protocol																								
8	Population specification																								
9	Sampling plan																								
10	Data collection plan																								
11	Ethics procedure																								
12	Finalization of plans																								
C	**Empirical phase**																								
13	Data collection																								
14	Data preparation																								
D	**Analytical phase**																								
15	Data analysis																								
16	Interpretation of results																								
E	**Dissemination phase**																								
17	Presentation or report																								
18	Utilization of findings																								
	Calendar months	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9

APPENDIX – J

INFECTION CONTROL STANDARDS IN LABOUR UNIT

Topic	:	Infection Control Standards In Labour unit
Group	:	Health care personnel working in labour unit
Place	:	Selected hospitals , Nagercoil.
Duration	:	20 – 30 minutes
Teaching method	:	Lecture cum discussion with power point presentation
Instructor	:	Investigator
Instructional Aid	:	Infection control standards
General objectives	:	At the end of the teaching health care personnel will gain in depth the level of practice on infection control standards in labour unit.
Specific objectives	:	At the end of the Teaching, Health care personnel will be able to • define infection control standards • list the intervention for keeping clean birthing room environment • enlist the personal protective equipments used during birth and their purposes • demonstrate 7 steps in hand washing describe the preparation of mother during labour and birth.

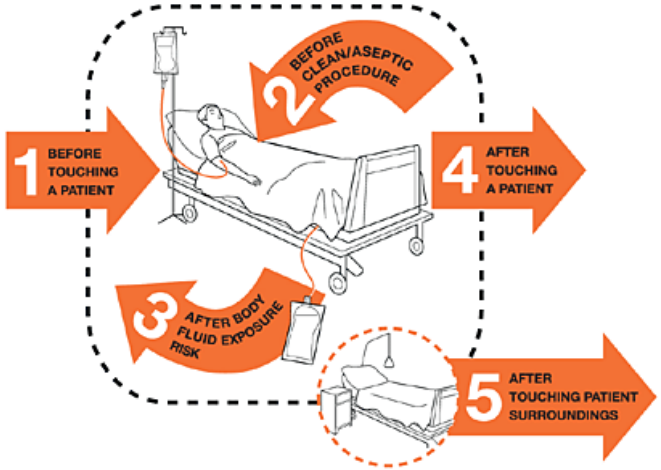
- describe the preparation of mother during labour and birth.
- explain the preparation of health care personnel before, during and after the labour and delivery
- mention about the storage of clean and sterile supplies
- discuss on safe waste management – when to dispose, where to dispose and how to dispose

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
1	to introduce the topic	**INFECTION CONTROL STANDARDS IN LABOUR UNIT** **INTRODUCTION:** Labour, the culmination of pregnancy, is the start of an incredible journey with great psychological, social and emotional meaning for the mother and her family. During this incredible journey of childbirth, woman's genital tract is prone to infection due to sub standard level of infection control practice. Infection prevention and control is integral to safe, effective and ethical nursing practice. Ensuring the use of infection control standards is an important component of nursing to prevent cross transmission from recognized and unrecognized sources of infection. The sources of infection include blood and body fluids secretions and any equipments or the method of procedure performed in the labour unit which are likely to become contaminated.	Investigator introduces the topic	Listening
2	to define infection control standards	**DEFINITION :** Infection control standards refer to the set of instructions which provides clear guidelines for the health care personnel regarding infection control practices.	Lecture cum discussion using power point	Listening

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
3		**COMPONENTS INCLUDED** 1. Clean birthing room environment. 2. Infection control practice during labour and birth 3. Storage of clean and sterile supplies 4. Safe waste management-	Lecture cum discussion using power point presentation	Listening
4.	list the intervention for keeping clean birthing room environment	**1.CLEAN BIRTHING ROOM ENVIRONMENT** ➢ To support the effective management there is a need to maintain tidy, well organized, clutter free environment. ➢ The term "Environment" refers to • floor • Delivery cots, furniture, doors… • hand washing area / sink • kick buckets • suction apparatus • oxygen humidifier • traffic control ➢ ***Intervention for clean birthing room environment includes the following*** • Floor should wet mopped in every shift with Lysol/ chlorine solution in every shift.	Lecture cum discussion using power point presentation	Listening

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
		• Cleaning should be under taken when the environment is visibly dirty eg. contamination with dust and spoilages. • Cleaning with chlorine solution should be under taken when spillage occurs. • Items in delivery room such as delivery cot, furniture, doors…etc should be cleaned and disinfected with alcoholic rub daily in one shift. • Use of personal protective equipment should be worn to protect those caring for the environment. • Sinks (Hand washing area) should be cleaned with suitable soap solution daily. • External cable, fetal monitors and accessories should be cleaned with alcoholic rub after each patient use. • Traffic in and out of delivery room should be kept to a minimum. Personnel working in labor unit are restricted to move of delivery room frequently. • Only authorized personnel are allowed in labor and delivery unit. • Suction bottle and oxygen flow meters should be cleaned/ whipped down with hypochloride solution daily. • The suction bottle should be emptied every 12^{th} hourly. • The suction tubing should be changed once a week • Oxygen humidifier should be cleaned daily with alcoholic rub and filled with sterile water in each shift.		

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
	enlist the personal protective equipments used during birth and their purposes	*Personal protective equipment* ➢ Personal protective equipment at birth to avoid contamination through blood or other body fluid(amniotic fluid) splash should include :  • Sterile glove • Protective apron/ gown • Protective eye ware • Fluid resistant surgical mask • Shoe cover • Surgical cap ➢ Use of good hand washing technique (medical hand washing for 30 seconds and surgical hand washing for 2 – 3 minutes) should be followed before and after the procedure. ➢ Sterile glove: • Use for all aseptic procedure. • Clean glove should be worn while handling contaminated with body fluids and bloods.	Lecture cum discussion using power point presentation	Listening

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
		• Hands are washed after removal of glove. ➢ Protective apron / gown, eye ware, fluid resistant surgical mask, shoe cover and surgical mask : • Should be worn in any situation where there is the potential for splashing, splattering or spraying of blood or bloody substances. ➢ Hand hygiene • The term hand hygiene includes hand washing using soap and water and hand decontamination achieved using other solution (eg) alcoholic hand rub. ***Your 5 moments for hand hygiene :***  	Lecture cum discussion using power point presentation	Listening

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
		• ***Preparation before hand washing*** :- - Gather all relevant equipment and ensure that everything needed to perform hand hygiene is present . - Ensure the sink area is free from extraneous items such as medicine cups, used instruments. etc - Ensure jacket / coat is removed, wrist and forearms are exposed. - Jewels must be removed. - Ensure nails are short.	Lecture cum discussion using power point presentation	Listening
5	demonstrate the 7steps hand washing.	• ***7 steps hand washing***  	Lecture cum discussion using power point presentation	

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
		- Step – 1: Rub Palm together. - Step – 2: Rub the back of both hands. - Step – 3: Interface fingers and rub hands together. - Step – 4: Interlock fingers and back of fingers of both hands. - Step – 5: Rub thumb in rotating manner followed by the area between index finger and thumb for both hands. - Step – 6: rub finger tips on palm for both hands. - Step – 7: Rub both wrist in a rotating manner. Rinse and dry thoroughly. • ***Hand hygiene using alcohol based hand rub*** - Alcohol based hand rub can used following hand washing. - Steps to perform are the same as performing hand washing.		
	describe the preparation of mother during labour and birth.	**2.<u>INFECTION CONTROL PRACTICE DURING LABOR AND BIRTH:</u>** ➢ ***Preparation of mother:*** i) General preparation • After the external gentalia preparation is performed, vagina is cleaned with antiseptic soaked sponge mounted on a sponge holder. • Vagina dried with sponge. • If required urinary catheterization should be performed using sterile glove and aseptic	Lecture cum discussion using power point presentation	Listening

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
		technique • **<u>VAGINAL EXAMINATION:</u>** - Use aseptic hand washing technique. - Wear personal protective equipment such as face mask and sterile glove. - The genital tract does require cleansing before the vaginal examination unless there is obvious purulent discharge. - Keep vaginal examination to a minimum of every 4 hours if required - to lessen the chance of infection to the mother and the baby. ii) Preparation for delivery • Moisture proof pad placed under the buttocks. • Dependant end of the moisture proof pad is placed in kick bucket. • Prepare the area with antiseptic soaked sponge which includes - Pubic - Vulva - -Labia majora - Labia minora - -Lateral aspect of thighs - -Finally downwards to anus • Discard sponge after scrubbing each area.	Lecture cum discussion using power point presentation	Listening

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
6	explain the preparation of health care personnel before, during and after the labour and delivery procedure	➢ ***Preparation of delivery tray set up*** • Sterile Vaginal delivery pack once opened should be used within 12 hours. • Label with date and time should be placed on the set up. ➢ ***Preparation of health care personnel*** • A surgical scrub is enhanced. • Personal protective equipments will be worn by the health care personal before the procedure. ➢ ***During the Procedure*** • Clean cloth is kept ready to receive the baby. • Absorbent sterile gauze must be placed over the scissor between the clamps to prevent the spurting of blood during cutting the cord. • Avoid needling the cord to obtain the cord blood, to reduce the risk of needle stick injury. • Cord blood should be obtained by slowly releasing the forceps to allow approximately 15 – 20 ml of blood to flow into a test tube. Reclamp the cord immediately to prevent the spillage.	Lecture cum discussion using power point presentation	Listening

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
7		• Used syringe, along with excess blood should be disposed into blue colored waste bin immediately. ➢ ***After the procedure*** • Use of disposable glove when examining the placenta. • Place in plastic bag and dispose in clinical waste stream. • Wash down the external genitalia with antiseptic solution. • Discard the moisture proof pad which is kept under the buttocks before delivery. • Delivery table is cleared and other items are discarded immediately. • All reusable instruments are sent for sterilizing process. • Remove the soiled glove, clothing and wash the hands, arms and other contaminated skin surface as soon as possible. ➢ ***Examining the perineum and suturing*** • Aseptic hand washing is carried out. • Soiled protective equipments should be changed before performing suture. • Wash down external genetalia of mother using antiseptic solution or sterile water as required. • Set the sterile suture set.	Lecture cum discussion using power point presentation Lecture cum discussion using power point presentation	Listening Listening

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
		• Drape the episiotomy area with sterile central hole towel. • Examine genital tract using sterile gauze after suturing. ➢ ***Clean and safely handle all contaminated surface and materials following procedure*** • Contaminated surface: Wipe the following surface with a cloth soaked in 0.5% chlorine solution after every delivery - Labor cot including the legs. - Procedure table where sterile tray is set up(including the legs). - Floor. - Any surface splattered with blood / or other body fluids such as amniotic fluid or that is come in contact with a provider or other staff person's gloved/ soiled hands(eg. Instrument trolley, lamp, walls, door handle…etc). • Other contaminated materials : - Disposal of all contaminated medical waste and water proof container. - Keep contaminated drapes and other linens from contact with skin, mucosa, clothing and surfaces. Place them in or on water proof surface and transport them to the processing area immediately. - Follow the same principle when handling the clients soiled clothing. Place the		Listening

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
		soiled cloth in a plastic bag and give them to the family for cleaning and safe keeping.		Listening
	mention about the storage of clean and sterile supplies	**3. STORAGE OF CLEAN AND STERILE SUPPLIES:** • All clean/ sterile supplies shall be stored on shelves and be dust free. • All sterilized pack should be labeled with the name of items and date of sterilization. • Sterilized pack should be used within 14 days of sterilization. • Sterilized pack should be checked routinely for expiry date.		
	discuss on safe waste management – when to dispose, where to dispose and how to dispose	**4. SAFE WASTE MANAGEMENT** : - The safe disposal of clinical waste contaminated with blood, other potentially infectious body fluids, and secretions or excretions is one of the elements of standard infection control precautions. ➢ ***When to dispose :*** Waste should be disposed of as close to point of use as possible, immediately after use.		

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
		➢ ***Where to dispose:*** • Container should be hand free/ pedal operated lid, containing appropriate waste bags so that hands do not become contaminated during the waste disposal. • Waste bags/ containers used to hold waste should be of appropriate strengthen to ensure they are capable of containing the waste without spillage or puncture. • Use of appropriate waste bags(colour code) should be followed ***Colour code***  - Yellow/Red colour – Body fluids, Blood and Placenta - Blue colour – Syringes, needles, cartridges, ampoules and other sharp instruments which have been used - Black colour – General waste • Never dispose of waste into an already full recepticle. Bags should be no more than 3/4th full.		

S.No	Contributory Objectives	Content	Investigator Activity	Learner Activity
		How to dispose: • Always wear personal protective equipment. • Never touch the waste receptacles. • Never over fill the receptacles. • Items containing the fluid, particularly those containing blood/ body fluids, that have to disposed of should have the container solidify in order that they are safe to transport. • Seal all bags/ container appropriately before disposal/ transporting/ processing. • Perform hand hygiene following any waste handling/ disposal **CONCULSION:** Worldwide escalation of the use of infection control standards will endorse quality promotion of health care which is safe for the mother, new born and health care personnel in labour unit. Thus **e**fforts to promote clean delivery care and to reduce infection-related causes of maternal mortality and morbidity will be one way to provide evidence of national commitment to reduce maternal mortality.		